

# AUTORA



Volume 44, No. 8

The Royal Astronomical Society of Canada - Windsor Centre

May 2019

## Science Rendezvous 2019



On Saturday May 11, 2019 the RASC Windsor Center participated in the 12th annual Science Rendezvous Festival at the University of Windsor. Science Rendezvous celebrates science and discovery by immersing children, teenagers and people of all ages in hands on activities, exciting demonstrations, engaging exhibits and the opportunity to participate in contests. Science Rendezvous is a non-profit annual event which promotes the importance of science to society. Its goal is to inspire everyone to keep their curiosity about science alive, and generate a culture of discovery and innovation.

The theme this year was STEAM: Science, Technology, Engineering, Art and Math! There were chemistry and physics shows as well as the RASC hosted Solar Observing early in the day while the weather cooperated. Thanks to all our members who came out to "man" the booth inside the Education Gym and set up telescopes outside for safe solar observing. I apologize in advance if I missed any names: David Elgee, Jeremy Hansen, Rob Hansen, Mahayarrahh-Starr Livingstone, John Marn, Mike Mastronardi, Nancy Ng, Steve Pellarin, Susan Sawyer-Beaulieu, Monica Shartner-Hansen and Sandy van Gaalen.

*Photo by Mahayarrahh-Starr Livingstone (more photos can be found on page 6)*

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## Calendar of Events

### *Our next meeting...*

Tuesday June 18, 2019  
7:30 p.m.

at  
Ojibway Park Nature Centre  
5200 Matchette Road

### *Main Speaker...*

Janet Hart,  
Faculty of Environmental and Earth Sciences -  
University of Windsor

### *Topic...*

*Planetary Geology - Venus*

### *Activities...*

**Ceres:** The dwarf planet will be at opposition on Tuesday May 28th and 9 degrees North of Antares.

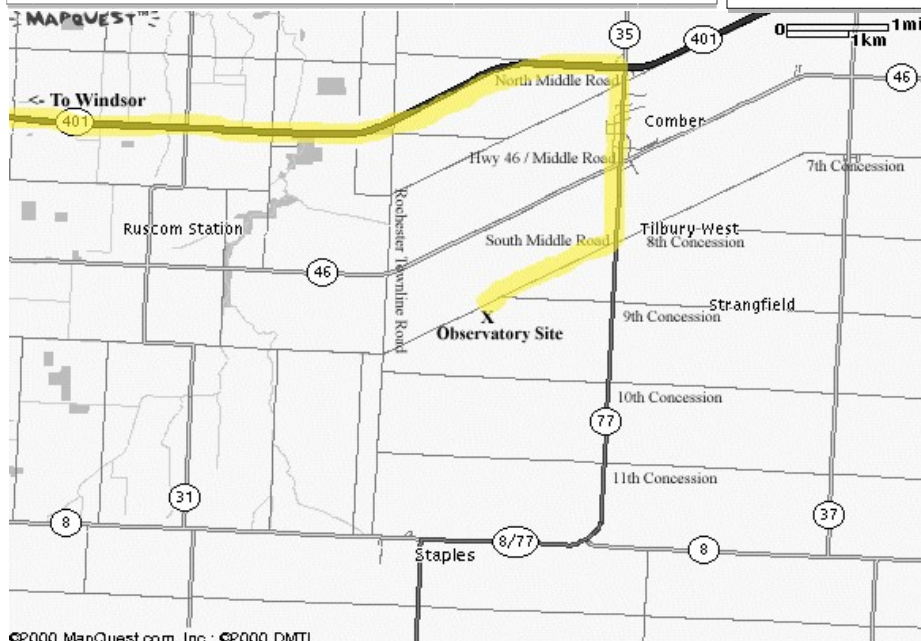
**Dark Sky Night:** Join the us on Saturday June 1st at 8:30 p.m. EDT at the Point Pelee Visitor Centre Parking Lot.

**Jupiter:** Is at opposition on Monday June 10 and a double shadow transit of the moons Ganymede and Io will take place from 11:33 p.m. - 12:33 a.m. on Tuesday June 11th.

**Council Meeting:** The RASC - Windsor Centre council will be meeting at 7:30 p.m. on Tuesday June 11th at Mike Mastronardi's employer Stantec.

**Mercury and Mars:** Mercury will pass 17 arc minutes North of Mars low in the evening sky of Tuesday June 18th.

**Saturn and Moon:** Are about a degree apart when they rise at about 10:30 p.m. EDT on Tuesday June 18th.



### Hallam Observatory Site

**Directions:** The map at left shows the Comber area and it includes the major highways (401, 77, 8 and 46) that are in the area of the observatory.

The most direct route from Windsor is "highlighted" on the map which is to take Highway 401 East to Highway 77 South to South Middle Road. Turn right onto South Middle Road and go about 1 kilometer and just after the point where Concession 9 joins it (it is hard to see this intersection) you will find the observatory site on the South side (left) of the road. 3989 South Middle Road.

If you hit the Rochester Townline Road (you come to a stop sign) you have gone too far.

## Submissions

Aurora is published monthly except for July, August and December. The September, October, January, March and May issues are full newsletters (usually 6 pages) with a number of member submitted articles. The November, February, April and June issues are short flyers (2 pages).

Submitted articles can be of any length from a paragraph to multiple pages. I can scan pictures and/or diagrams (both prints and film) to support your article and the originals will be returned to you.

Submission deadline is the 1st of the month.

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## Membership

The Windsor Centre of The Royal Astronomical Society of Canada meets on the 3rd Tuesday of every month (except July and August) at the Ojibway Park Nature Centre. In addition to regular meetings the centre hosts a number of observing nights, a picnic and a December social. Members receive a copy of the Observer's Handbook, a subscription to SkyNews magazine and access to the Centre's library and telescopes. Optionally the RASC Journal is available in print form—online version free.

Annual Membership Fees: Please see the RASC website at [www.rasc.ca](http://www.rasc.ca) for current rates.

Contact Nancy Ng ([mysticdog2012@gmail.com](mailto:mysticdog2012@gmail.com)) or visit our website at: <http://www.rascwindsor.com> for more information.

## April 2019 Meeting Minutes by Sandy van Gaalen

The monthly meeting of the **Royal Astronomical Society of Canada - Windsor Center** was held at the Ojibway Park Nature Centre on **Tuesday April 16, 2019**.

Windsor Centre **President, Mike Mastronardi** chaired the meeting and **called the meeting to order at 7:36 p.m.** and welcomed members and guests to the Ojibway Park Nature Centre.

Mike invited members to review **the minutes of the March 19, 2019** meeting which were printed in the April Aurora Flyer. A **motion to accept the minutes** was made by **Dr. Susan Sawyer-Beaulieu**, seconded by **Randy Groundwater**. **MOTION CARRIED**.

Mike provided an overview of the meeting and then introduced our guest speaker.

### Main Presentation

Speaker **Fred McPherson** was welcomed to the floor for his talk on *meteorites and his adventures in collecting them*.

Fred is from **Chatham, Ontario** and is known as **Mic the meteorite man**. Fred presented his display and spoke to a full house of enthusiastic knowledge seekers on meteorites which also included many children.

Fred has spent most of his time **talking with schools, Universities, clubs etc.** but this was his first talk with the Royal Astronomical Society of Canada. He talks about how he became **interested in meteorites, their composition, where they come from and how we find them**.

Fred explains how his interest led to adventures which led to **meteor hunting** with many people from **around the world**. Fred talked about his many trips within the U.S. and various other places. He discussed the meteorite which landed in **Michigan recently**.

His display of numerous meteors of **various size, composition and from different locations**, were enjoyed by the members. Everyone enjoyed **holding and examining the meteors**.

Mike thanked Fred McPherson for his presentation.

The **50/50 Draw** was won by **Monica Shartner-Hansen** and was donated back to the club.

### Director of Observing Report

**Nancy and Jessie** were welcomed to the floor and opened the Director of Observing report with **images of the night sky taken by members**. Activities at the **April 6<sup>th</sup> Dark Sky Night** at Pt. Pelee were highlighted as well as a visit by Nancy and Starr to **Christian Horizons** to share astronomy interests.

The **winter constellations Taurus, Orion and more**, visible in the western horizon are quickly leaving the night sky while **summer constellations of Leo, Hercules, Virgo and Bootes** are rising in the east. The constellations move approximately **15 degrees per hour**. A close look at the constellation **Leo** provided areas of interest for binocular or telescope views. It seems the winter constellations are visible for a short period while the summer constellations stay around forever.

**Asteroid 8 Flora** was highlighted along with information about the main asteroid belt located between the orbits of the planets **Mars and Jupiter**. Updates on the positions of **Mercury, Uranus and Neptune** revealed that they were not visible at this time.

**Jupiter** is rising after midnight and is still visible in the early morning S/E sky with **Saturn** rising after 2:45 am. **Venus** is rising later around 5:50 am and visible before the sun rises for about 45 minutes.

The **moon** will pair up with **Jupiter and Saturn** twice over the next 30 days.

The **Event Horizon Telescope** was detailed and the image of the **Black Hole in the galaxy known as M87** was shown. This galaxy is around 55 million light years away and is surrounded by about 15,000 globular clusters. There is a **quasar emitting a jet** of subatomic particles containing radiation from across the electromagnetic spectrum. This jet is travelling at almost the speed of light and is around 5,000 light years in length.

**Visible Asteroids**—May 12 asteroid **8 Flora**, May 14 asteroid **11 Parthenope** and on May 20 asteroid **20 Massalia**. **Meteor Showers** April 19 to 25 – **Lyrid** and April 24 to May 20 – **Aquarids**. The Asteroids and Meteor Showers are some of the spectacular sights during the upcoming month.

**Reminders:** Astro Luncheon at **Skippy's Restaurant** every second Wednesday of the month, at noon. Located at 954 University Ave West, Windsor.

**Mike** thanked everyone for coming out to the meeting and reminded everyone that the **next regular membership meeting** would take place on **Tuesday May 21, 2019 at 7:30 p.m.**

**Meeting adjourned** at 9:20 p.m. April 16, 2019.



*A relatively quiet Sun - Juliana Grigorescu*

## At The Eyepiece: Deep Sky Lyra - Part 1 by Mike Ethier

Lyra makes a wonderful constellation with which to introduce observers to a single area of sky. I tend to observe by constellation, and usually have notes prepared for one or two of them for each season of the year. Lyra is a perfect place to start for a number of reasons, including its high position in the sky, its small size, and the large number of interesting objects to locate and view. It is wonderful to view the overall star pattern with the naked eye, and the fact that it is visible all summer and well into the autumn, giving plenty of opportunity to try out your telescope skills, is another reason to undertake a detailed study. In fact, you will have to wait until the September issue of *Aurora* before we go really deep into Lyra; in Part One this month we will tackle some of the more obvious highlights.

Vega, Lyra's alpha star, can be painful to observe in an 8" scope or larger, especially when overhead in a transparent, dark sky. It is so bright that it is better to observe it in twilight. Vega is the brightest star in the Summer Triangle, at magnitude 0. Burnham provides a great write up on this beautiful star in his *Celestial Handbook*, Vol 2. Our sun and solar system are moving towards the area where Vega is. Vega was the first star to be photographed, on the night of July 15-16, 1850, using a 15" refractor. The exposure was 100 seconds. Vega has an optical companion, mag. 10. It can be seen in a good 6" scope, but an 8" shows it easily.

Next up is Beta, a naked-eye variable star that every amateur astronomer should see and experience. For a few days Beta and Gamma Lyrae will appear nearly equal in brightness. However, every 13 days Beta will fade to only half the brightness of Gamma (which is mag. 3.25). Beta will dip to between 3.8 and 4.1 mag. Beta is a regular variable of the eclipse variety. It was the star that most interested Otto Struve, the great double star investigator. Its predictable light curve seems to form a letter "M" (see Burnham, pg. 1147). Visually, Beta has two companion stars that are associated with it, and a third one that is optical. The magnitudes of these stars are roughly 7 (46" away from Beta); 9 (at 69"—this is the optical member); and 9 (86"). In addition, there is a 13<sup>th</sup> mag. star at 46", also an optical double.

Delta Lyrae consists of two stars, with a pleasing colour contrast. They are far enough apart to make a fine binocular double star. Delta 2 is the brighter of the two stars. It has an 11<sup>th</sup> mag. companion at 86" distance. The area surrounding Delta is said to have around 100 stars. In fact, on *Uranometria* Chart 49 (all sky edition), the Delta stars are included in open cluster Stephenson (Ste) 1. Its statistics give a diameter of 40', an overall visual

mag. of 3.8, a total of 77 stars, and the brightest star being 4.2 magnitude. This is a really fun area to observe with my Astroscan 4" reflector, at around 16x. Delta 1 appears a deep and very rich yellow colour.

Epsilon Lyrae is the renowned "double-double" star, and is always a hit at star parties with people new to observing. Look for it north-following Vega, less than 2 degrees away. This is a beautiful sight in Deb's 6" reflector. Like Delta, Epsilon consists of two bright components. E1 is mag. 5.1, and E2 is also mag. 5.1; the main pair are 208" apart. The companion to E1 is mag. 6, lying just 2.8" away from it. The companion to E2 is mag. 5.4 at 2.6" distance. This 2<sup>nd</sup> pair lies south of E1. If you have never

seen this wonderful object, you are missing out on a unique experience.

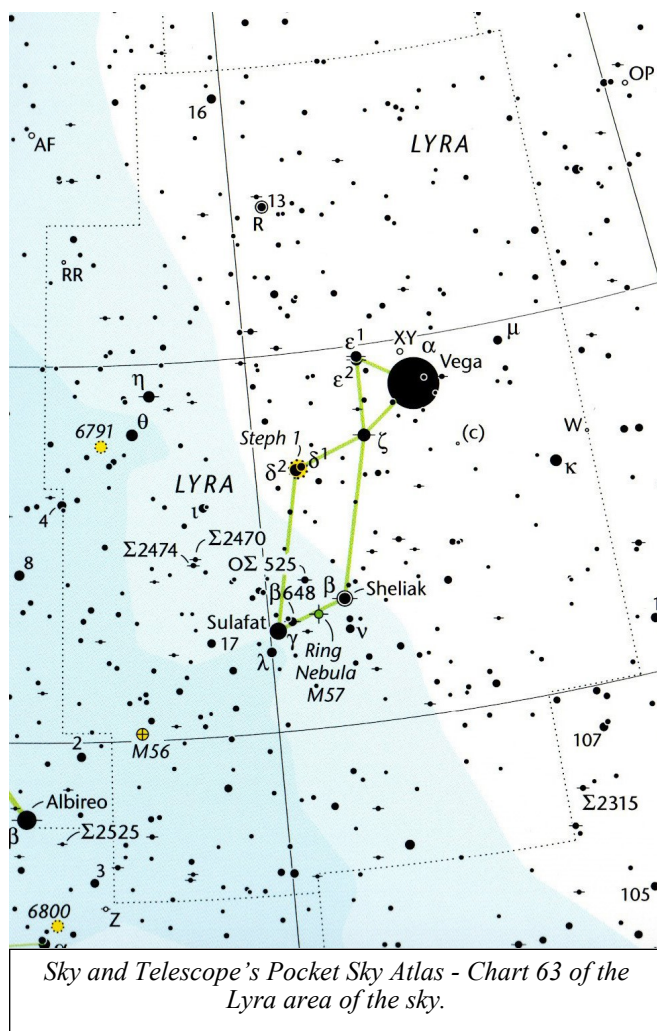
There is a wealth of fabulous double stars in Lyra, pages and pages of them, in fact. Another bright and really fine one is Eta (N). It is an optical double 28" apart, mag. 4 and 8. Other favourites of mine are Struve 2333, which is yellow and blue (7.5-8/6"), Struve 2351, a stunning double, both white (7.5-7.5/5"), Struve 2367, deep yellow and bluish (7-8.5/14"), Struve 2448, a lovely pair, both stars white and of equal magnitude (8-8/2.7"), Struve 2472 (a triple!), and Struve 2470, 2474, and 2483 (another fine triple of ivory, greenish, and orange colour). All of these make for a wonderful evening of double star viewing, but they are only the tip of the iceberg for this small but exceedingly rich area of the sky.

And speaking of coloured stars, I would like to recommend T Lyrae, an irregular variable star that moves between mag. 7.5 and 9.3. This deeply coloured orange star is a real beauty, especially at minimum!

The next time we will dive into the NGC highlights of Lyra, including an almost unknown planetary nebula, two unusual open clusters, and a small collection of pretty decent galaxies. See you in September!

### Messier of the Month: M 57 in Lyra

Easily the finest planetary nebula in the sky, M 57 is a favourite of mine and many other amateur astronomers. It is also a fun object to share with newbies. I would be curious to know how many telescopes are pointing here at any given time on a clear night. One of the wonderful things about astronomy is that even very popular objects are never overcrowded with tourists, and there is no litter!



## At The Eyepiece (continued)

I have enjoyed amazing views of this object in Space Eye, my 2" refractor; my former Tasco 4 1/2" Lunagrosso Reflector; the trusty Edmund 8"; my Orion 12" Dob; and in Randy Groundwater's 22" Dob. I have always played a kind of game with M 57. On those long twilight evenings of summer, I try to find M 57 in a sky that is just beginning to darken. As soon as I can see Beta and Gamma Lyrae, I search for it. It looks pretty special as a ghostly, very faint object at that time of night, barely differing in colour from the surrounding sky. As the sky darkens I return to it often, watching it develop like a photo print in a darkroom chemical tray. When the very center of M 57 is black, then I know that the sky is dark enough to begin work on faint objects!

M 57 reveals very little detail in an 8" scope or smaller. Its oval shape is obvious, as are a very few faint stars lying just outside of it's borders. However, certain parts of the ring appear to be brighter than other parts. When you stare directly at it, the center seems to become enveloped in haze. However, when using averted vision the center appears dark and empty. I had a clock drive with the 8" scope, and it came in handy when observing M 57 at higher power. 169X seemed to give an optimum view with the F5 scope.

On August 4<sup>th</sup>, 2013, I got my first look at M 57 with my 12" Dob. Even in such a mirror, not much detail can be seen. This is not that uncommon for planetary nebulae, which can be bright, even colourful, but other than their shape not much can be discerned from the eyepiece. A filter isn't necessary with M 57, due to its large size and brightness, but when you do use one there is a considerable difference. The object really pops out, seeming 3D in appearance, and some very irregular details are noticed on the outer fringes. For a real challenge (12" scopes or bigger), there is a very faint IC galaxy lying just north preceding M 57. It lies about three nebula widths away, sitting in a very faint circlet of stars. I have glimpsed it several times in the 12".

On the night of September 25<sup>th</sup>, 2013, I had my first confirmed sighting of the central star. Given as mag. 15.2, I glimpsed it three different times that night at 250x in my 12" Dob. It was not a steady light, but it would occasionally wink on and off, much like faint stars do when resolving just outside of a globular cluster. I recommend trying this in the darker skies of autumn. In September's column, we will examine M 56, the globular cluster in Lyra.

M 57 (pn 6720): Size—3'.2 x 2'.4: Vis. Mag. 8.8: Central star mag. 15.2.

Clear skies! See you in the autumn.



## Astrophotos



*First light for Jeff Peacock's recently refurbished telescope.*



*Pete Barbaro has been out testing his ASI224 video camera by shooting the Moon, Jupiter and some deep sky objects. Shown at far left is the crater Clavius and above the area SW of Clavius. Pete also shot M 13 and the Ring Nebula M57 shown at left. All photos are from within the City of Windsor.*

## Science Rendezvous / Astrophotos



Science Rendezvous Photo Credits: Mike Mastronardi and Tom Sobocan. Orion slipping into the Western horizon for another season - here comes Summer by Nancy Ng.